

Appl. No. 10/050,246  
Amdt dated Oct 09, 2003  
Reply to Office Action of Jul 15, 2003

### Amendments to the Specification

Please replace the abstract with the following rewritten abstract:

A1  
An improved barrier stack for inhibiting diffusion of atoms or molecules, such as O<sub>2</sub> is disclosed. ~~The barrier stack is particularly useful in capacitor over plug structures to prevent plug oxidation which can adversely impact the reliability of the structures.~~ The barrier stack includes first and second barrier layers ~~having mismatched grain boundaries.~~ ~~The barrier layers are selected~~ formed from, for example, Ir, Ru, Pd, Rh, or alloys thereof. ~~By providing mismatched grain boundaries, the interface of the layers block the diffusion path of oxygen.~~ ~~To further enhance the barrier properties, the~~ The first barrier layer is passivated with O<sub>2</sub> using, for example, a rapid thermal oxidation (RTO) prior to formation of the second barrier layer. The RTO forms a thin oxide layer on the surface of the first barrier layer. ~~The thin oxide layer can advantageously passivates the grain boundaries of the first barrier layer as well as promoting~~ promote mismatching of the grain boundaries of the first and second barrier layer.